What you will learn about:
Graph with Intercepts

Intercepts of a graph

Standard form
$Ax + By = C$

Finding x-intercept
Let x = 0 and solve for y

Finding y-intercept
Let x = 0 and solve for y

x-intercept

$Ax+By=C$

$Ax+B(0)=C$

$Ax=C$

$x=\frac{C}{A}$

y-intercept

$Ax+By=C$

$A(0)+By=C$

$By=C$

$y=\frac{C}{B}$

Slope

$m=-\frac{A}{B}$

Finding the x and y intercepts of the graph

Find the intercepts of $2x + y = 6$

Find the intercepts of $3x + 6y = 24$

$x=\frac{24}{3}$ $y=\frac{24}{6}$

$=8$ $=4$

$(8,0)$ $(0,4)$

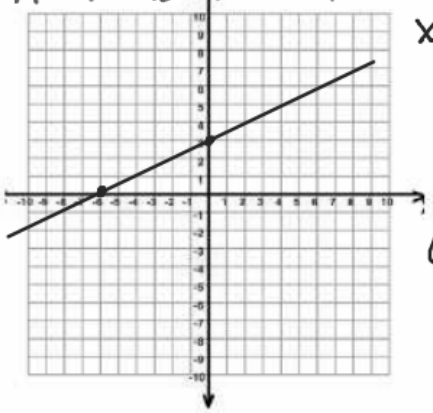
Find the intercepts of $4x - 3y = 12$

$x=\frac{12}{4}$ $y=\frac{12}{-3}$

$x=(3,0)$ $y=(0,-4)$

Graph using the intercepts
$-x + 2y = 6$

$A=-1$ $B=2$ $C=6$



x-int

$x=\frac{C}{A}$

$=\frac{6}{-1}$

$=-6$

$(-6,0)$

y-int

$y=\frac{C}{B}$

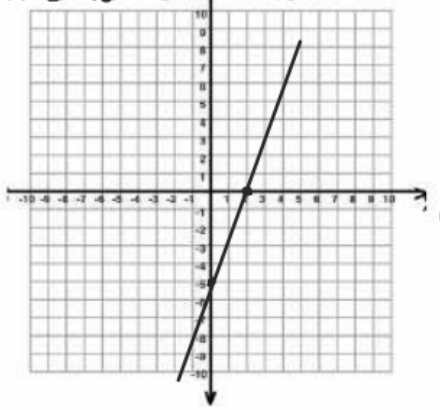
$=\frac{6}{2}$

$=3$

$(0,3)$

Graph using the intercepts
$5x - 2y = 10$

A=5 B=-2 C=10



X-inter

$x = \frac{C}{A}$

$= \frac{10}{5}$

$= 2$

(2,0)

Y-inter

$y = \frac{C}{B}$

$= \frac{10}{-2}$

$= -5$

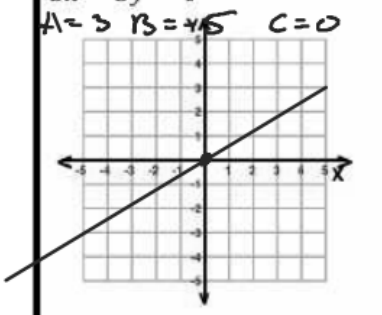
(0,-5)

Slope $= -\frac{A}{B}$

$= \frac{-3}{-5} = \frac{3}{5}$

Graph using the intercepts
$3x - 5y = 0$

A=3 B=-5 C=0



X-int

$X = \frac{C}{A}$

$= \frac{0}{3}$

$= 0$

(0,0)

Y-inter

$y = \frac{C}{B}$

$= \frac{0}{-5}$

$= 0$

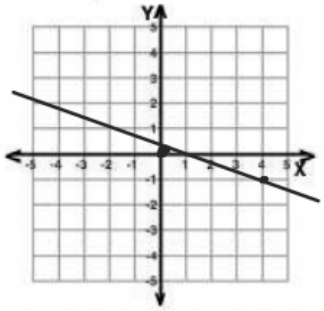
(0,0)

Slope $= -\frac{A}{B}$

$= \frac{2}{-8}$

$= -\frac{1}{4}$

Graph using the intercepts
$-2x - 8y = 0$



X-int

$X = \frac{C}{A}$

$= \frac{0}{-2}$

$= 0$

(0,0)

Y-int

$y = \frac{C}{B}$

$= \frac{0}{-8}$

$= (0,0)$

What you will learn about:
Understanding Slope of a Line

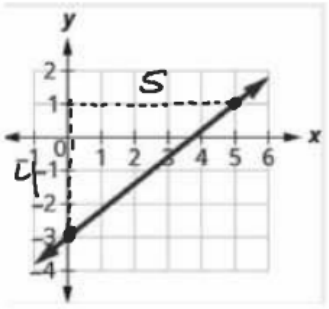
Slope of a line

$$m = \frac{rise}{run}$$

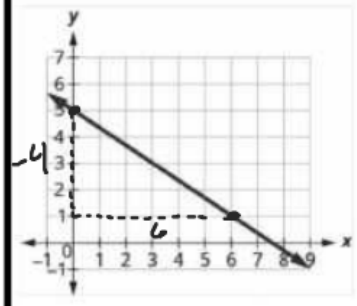
$$m = \frac{\Delta y}{\Delta x}$$

Find the slope of the line.

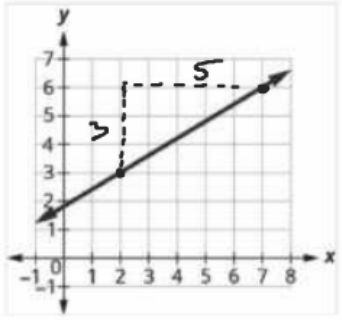
Work Left to Right



$m = \frac{4}{5}$



$m = \frac{-4}{6} = \frac{-2}{3}$



$m = \frac{3}{5}$

Formula to find slope given two points

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Find the slope of the line that passes through the points (1, 2) and (4, 5).

$x_1\ y_1 \quad x_2\ y_2$ $\quad m = \frac{y_2 - y_1}{x_2 - x_1}$

$= \frac{5-2}{4-1} = \frac{3}{3} = 1$

Find the slope of the line that passes through the points (8, 5) and (6,3).

$m = \frac{3-5}{6-8} = \frac{-2}{-2} = 1$

Find the slope of the line that passes through the points (-2, -3) and (-7, 4).

$m = \frac{4-(-3)}{-7-(-2)} = \frac{7}{-5} = -\frac{7}{5}$

Find the slope of the line that passes through the points (-2, 6) and (-3, -4).

$m = \frac{-4-6}{-3-(-2)} = \frac{-10}{-1} = 10$

Find the slope of the line that passes through the points (3, -5) and (3, 8).

$m = \frac{8-(-5)}{3-3} = \frac{13}{0}$ Undefined

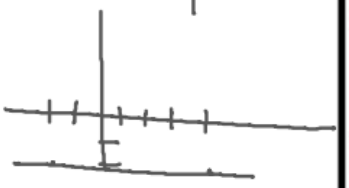
Vertical Line

No Slope

DNE

Find the slope of the line that passes through the points (4, -2) and (-2, -2)

$m = \frac{-2-(-2)}{-2-4} = \frac{0}{-6} = 0$

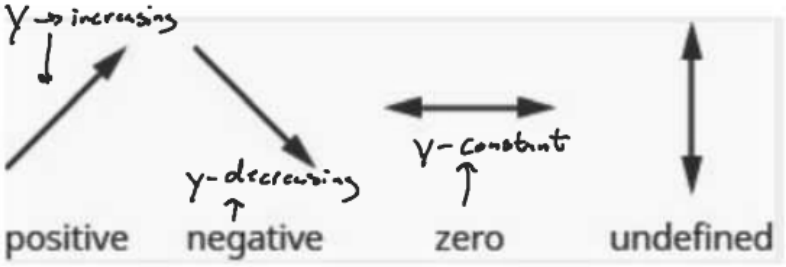


Horizontal Line

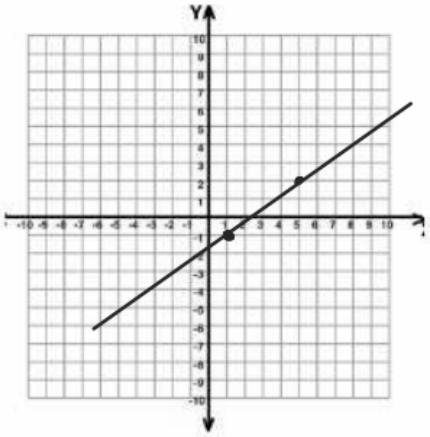
Find the slope of the line that passes through the points (5, 0) and (5, -6)

$\frac{-6-0}{5-5} = \frac{-6}{0}$ Undefined

Quick Guide to Slope (Left → Right)

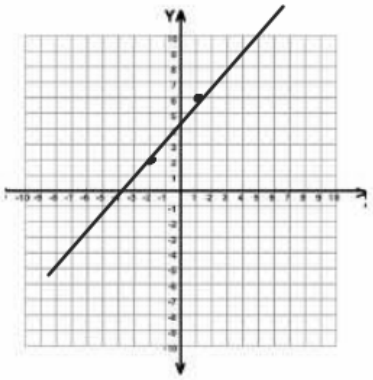


Graph the line passing through the point (1, -1) whose slope is $m = \frac{3}{4}$



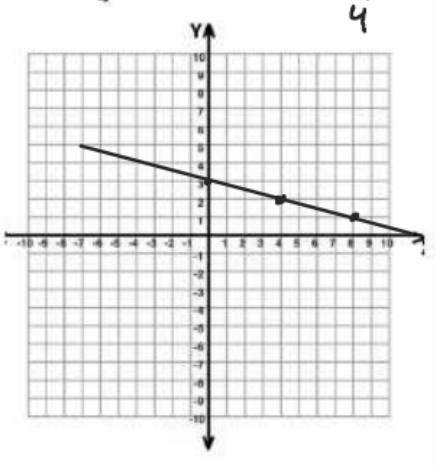
$m = \frac{3}{4}$ $\frac{\text{rise}}{\text{run}}$

Graph the line passing through the point (-2, 2) with a slope of $m = \frac{4}{3}$

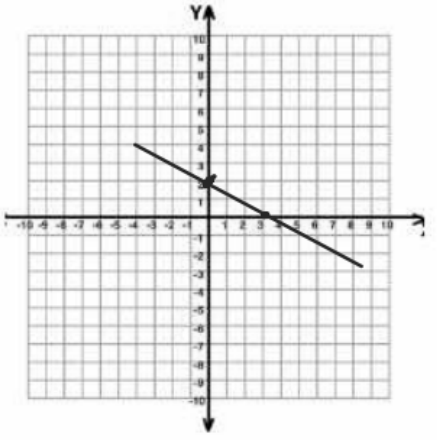


Graph the line passing through the point (4, 2) with a slope of $m = -\frac{1}{4}$

$-\frac{1}{4}$

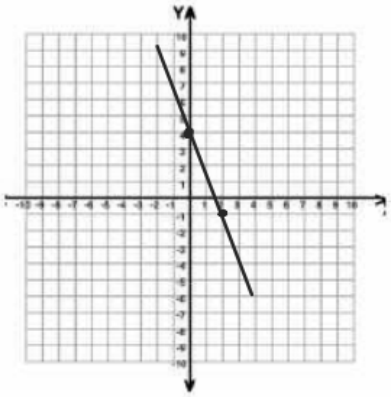


Graph the line with y-intercept 2 whose slope is $m = -\frac{2}{3}$

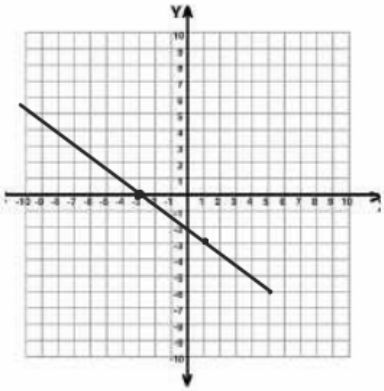


$-\frac{2}{3}$

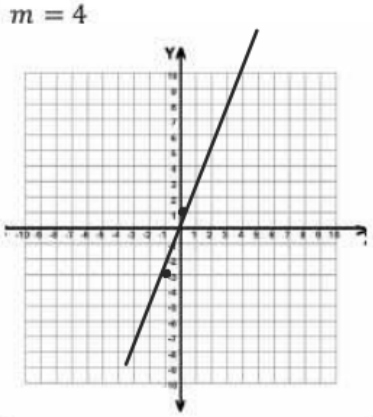
Graph the line with y-intercept 4 whose slope is $m = -\frac{5}{2}$



Graph the line with x-intercept -3 and slope $m = -\frac{3}{4}$



Graph the line passing through the point (-1, -3) with a slope of $m = 4$



$m = 4$

$= \frac{4}{1}$